

NYSDEC Comments on Fire Training Area Field Report: Vacuum Assisted Oil Skimming Pilot Test (January 2000), Fuel Depot Area Work Plan for Natural Attenuation Evaluation (April 2000), and Fuel Calibration Area Work Plan for Supplemental Sampling (April 2000), dated June 14, 2000.

Fire Training Area Field Report: Vacuum Assisted Oil Skimming Pilot Test

1. **Comment:** The Navy is proposing to utilize a vacuum assisted oil skimming system on impacted soils at the Fire Training Area to enhance product recovery. The Department reiterates its statement made at the February 16 RAB meeting that it may be more beneficial as well as cost effective to excavate and remove off site the impacted soils associated with the Fire Training Area. The RFI report of January 1998 indicated that approximately 25,000 cubic yards of contaminated soils in the area where air sparging/soil vapor extraction product recovery were carried out. But at the last RAB meeting, Mr. Dave Brayack estimated that the amount of impacted soils was approximately 6,000 cubic yards. We request to see data which supports this reduction of the impacted area. If there is indeed a large reduction as indicated, then this amount of material could be easily removed and shipped off site, thereby significantly reducing the contaminant source impacting groundwater.

Response: The estimate of the remaining contaminated soils at the Fire Training Area is based on data collected during the air sparge/soil vapor extraction test results that found significant reductions in the concentration of site organics. These results were forwarded to NYSDEC in December 1996. In addition, the AS/SVE system has continued to operate on a seasonal basis and further treatment of the contaminated soils and groundwater has likely occurred. However, recent testing have found that a floating free product plume and residual groundwater contamination remain. As a result, in the spring of 2000, the Navy implemented a free product recovery system and the AS/SVE continues to operate while a final remedy is being selected.

As discussed during the February 2000 partnering team, the Navy plans to complete the RFI/CMS portion of the investigation and proceed to cleanup. The CMS will evaluate cleanup alternatives including off site disposal of contaminated soils. Since cleanup of site contaminants occurring, additional delineation of soil and groundwater contamination will be required, either during the CMS or as a pre-design study.

The location of the remaining soil contamination is associated with the free product near the groundwater table, (16 to 18 feet below ground surface). This translates into thousands of cubic yards of soil needing to be excavated in order to reach the contaminated soils. Further, offsite disposal of these soils would require sending approximately 450 trucks (6000 CY) through local roads and over several hundreds of miles of highway. This alternative would have to be evaluated to determine if implementation of the above to dispose of only marginally contaminated soils would be a cost effective solution.

Fuel Depot Area Work Plan for the Natural Attenuation Evaluation

2. **Comment:** The Navy has proposed the concept of monitored natural attenuation for the Fuel Depot Area.

In referring to USEPA OSWER Directive 9200.4-17 (Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tanks) the following requires consideration in evaluating MNA.

Contaminants of Concern

...In general, since engineering controls are not used to control plume migration in an MNA remedy, decision makers need to ensure that MNA is appropriate to address all contaminants that represent an actual or potential threat to human health or the environment...

...Mixtures of contaminants released into the environment often include some which may be amenable to MNA, and other which are not addressed sufficiently by natural attenuation processes to achieve remediation objectives. For example,

Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) associated with gasoline have been shown in many circumstances to be effectively remediated by natural attenuation processes. However, a common additive to gasoline (i.e. methyl tertiary-butyl ether (MTBE)) have been found to migrate larger distances and threaten down gradient water supplies at the same sites where the BTEX component of the plume has either stabilized or diminished due to natural attenuation. In general, compound that tend not to degrade readily in the subsurface (e.g. MTBE and 1,4-dioxane) and that represent an actual or potential threat should be assessed when evaluating the appropriateness of MNA remedies.

Question: Have groundwater samples taken from the Fuel Depot Area ever been analyzed for MTBE? Additionally, what are the expectations of chlorinated solvents and BTEX compounds degrading satisfactorily under MNA.

Response: The Fuel Depot Area groundwater was tested for MTBE in the most recent round of groundwater samples (2000) and MTBE was not detected in any of the samples. The absence of MTBE in Site 7 groundwater is consistent with the time that the fuel leaks at the site would have occurred (prior to MTBE being used as an additive).

The MNA option for this site will be evaluated in the upcoming CMS. Except for a few isolated detections that are also associated with other contamination, chlorinated solvents are absent from site and therefore will not need to be addressed separately. However, the freon was detected at one location near the south west corner of the site. This freon will require separate consideration.

Petroleum-Related Contaminants

3. **Comment:** ...Following degradation of a dissolved BTEX plume, a residue consisting of heavier petroleum hydrocarbons of a relatively low solubility and volatility will typically be left behind in the original source (spill) area. Although this residual contamination may have relatively low potential for further migration, it still may pose a threat to human health either from direct contact with the soils

in the source area or by continuing to leach contaminants to groundwater. For these reasons, MNA alone is generally not sufficient to remediate petroleum release sites. Implementation of source control measures in conjunction with MNA is almost always necessary. Other controls (e.g. institutional controls), in accordance with applicable state and federal requirements, may also be necessary to ensure protection of human health and the environment.

Response: The Navy agrees. Initial source remediation was implemented by Northrop Grumman in the 1980s and 1990s. However, as has been confirmed during several investigations since the mid 1990s, the Northrop Grumman activities have been successful and recoverable free product is no longer at the site.

The primary objective of remediation at this site will be to protect and ultimately restore the groundwater to drinking water standards. MNA, groundwater containment, and source area treatment options will be considered. However, another objective will be to protect human health from reasonable direct exposure scenarios. If contamination remains at the site, then other controls would be required until the remaining contaminants do not represent a risk.

Sites Where Monitored Natural Attenuation May Be Appropriate

4. **Comment:** ...MNA is appropriate as a remedial approach where it can be demonstrated capable of achieving a site's remediation objectives within a time frame that is reasonable compared to that offered by other methods and where it meets the applicable remedy selection criteria (if any) for a particular OSER program. EPA expects that MNA will be most appropriate when used in conjunction with other remediation measures that have already been implemented...

...Of the above factors, the most important considerations regarding the suitability of MNA as a remedy include: whether the contaminants are likely to be effectively addressed by natural attenuation processes, the stability of the groundwater contaminant plume and its potential for migration, and the potential

for unacceptable risks to human health or environmental resources by the contamination. MNA should not be used where such an approach would result in either plume migration or impacts to environmental resources that would be unacceptable to the overseeing regulatory authority. Therefore, sites where contaminant plumes are not longer increasing in extent, or are shrinking, would be the most appropriate candidates for MNA remedies. An example of a situation where MNA may be appropriate is a remedy that includes source control, a pump-and-treat system to mitigate the highly contaminated plume areas, and MNA in the lower concentration portions of the plume. In combination, these methods would maximize groundwater restored to beneficial use in a timeframe consistent with future demand on the aquifer, which utilizing natural attenuation processes to reduce the reliance on active remediation methods and reduce remedy cost. Is, at such a site, the plume was either expanding or threatening downgradient wells or other environmental resources, then MNA would not be an appropriate remedy...

Question: How is the MNA alternative, which depends upon plume migration, consistent with the intent of the NCP that remedial plans prevent plume migration as a condition of implementing MNA?

Response: The MNA alternative does not depend upon plume migration. As stated above, plume stability and non adverse impacts on downgradient resources is a prime consideration.

5. **Comment:** Considering that the MNA alternative will not achieve groundwater restoration for possibly several decades, how is a MNA alternative consistent with the EPA's statement in the Federal Register and the OSWER Directive that natural attenuation should be selected only when contaminant concentrations will be reduced in a time frame that is reasonable and comparable to that which could be achieved through active restoration? Also, in response to the state made by Mr. Coulter at the 2/14/00 RAB meeting, how would the alternative of Monitored Natural Attenuation (MNA) be implemented if the Navy will not commit to long term monitoring (possibly 10 to 30 years) as may be required in a MNA situation.

Your response should recognize that the NYSDEC considers returning the contaminated groundwater to beneficial use to be a remedial objective for this project at this time. Compliance with ARARs is a threshold required that must be satisfied by an alternative before it can be selected, unless grounds for invoking a waiver is provided. Consider that in general, all contaminated groundwater will eventually disperse at any given site, and contaminant levels at every location will eventually return to "natural" levels without an infinite source.

Response: The cleanup time required under MNA will be compared to other options such as groundwater extraction and treatment. Experience over the past two decades have shown that groundwater extraction systems can likewise require long time frames (decades) to achieve the remedial goals. It was because of this finding that the Navy, EPA, and other groups starting investigating options to more effectively remediate sites.

Although the Navy could not find the exact reference in the meeting's transcript regarding the statement that the Navy will not commit to long-term monitoring in an MNA scenario, the Navy would like to offer the following clarification. The Navy will continue to be responsible for the long-term monitoring of any remedial system that is put in place by the Navy, including Monitored Natural Attenuation (MNA) for a period of time until the Remedial Action Objectives (RAOs) have been met. Further, once the RAOs have been achieved, the Navy will ensure that any additional monitoring that has been determined to be necessary to protect human health or the environment will be provided.

The Navy recognizes NYSDEC's remedial action objective (RAO) of restoring the groundwater resource to a beneficial use and will consider implementation and RAO achievement times as factors when selecting a preferred remedy for this site. The Navy fully intends that the selected remedy will attain ARARs upon completion of the remedy. Therefore, an ARAR waiver for this site is not anticipated at this time.

Fuel Calibration Area Work Plan for Supplemental Sampling

6. **Comment:** Data presented at the 2/14/00 RAB meeting indicated that VOC contamination was found in one deep monitoring wells located adjacent to the Fuel Calibration Area and that the full vertical extent of the VOC plume was not defined. It is possible that the contamination found at this well location came from a more likely upgradient source. A reinvestigation of the Paint Stripping Building (06-75) and the Aircraft Paint Hangers (168/318) may be warranted to determine if a source of contamination not identified thru previous investigations still exists.

Response: An investigation of these source areas was already conducted and no evidence of a source was found. As part of the current work plan, the Navy has proposed to install a profiling well upgradient of the source of this contamination (which is between the referenced buildings at the Fuel Calibration Area). If this profile well finds evidence of upgradient contamination, then a plume can be tracked further upgradient. If the profile well does not find evidence of upgradient contamination, then the source of the deeper groundwater contamination will be associated only with the fuel calibration area.